

Department of Land and Natural Resources

Sustainability Hotspot

1

PUUWAAWAA DRYLAND FOREST

~Big Island of Hawaii~



Top to bottom: The cinder cone which gives Puuwaawaa Dryland Forest its name, fires and animal grazing have wiped out most native plants opening the region for invasive weeds like fountain grass.

The land division, or *ahupuaa*, of Puuwaawaa gets its name from a large volcanic cinder cone which is a prominent landmark in the area. It is located on the western or leeward side of the island of Hawaii, approximately 18 miles from Kailua-Kona and 22 miles from Waimea. Puuwaawaa lies on the northern flank of Hualalai volcano, extending from sea level to within a mile of the mountain summit,

The entire region was forested at one time, but wildfires and more than 100 years of grazing by domestic livestock and feral animals have removed much of the native vegetation. Remaining native dryland forests are among the rarest and most biologically diverse in the Hawaiian islands. At least 25 rare plant species have been reported in the area. Of these, 15 are officially listed as endangered or are proposed for listing as endangered species. Some are found nowhere else in the world.

Dry forests like Puuwaawaa are the most heavily impacted ecosystems in the Hawaiian islands. At least 90 % of these forests has been eliminated since european contact. The remaining 10 % has been severely degraded by introduced plants and animals. Only remnants of the critically imperilled *lama* (ebony) and *kauila* (buckthorn) lowland dry forest exist and it is all restricted to Puuwaawaa. Native dry forests are disappearing rapidly as old trees die with no replacements. Remaining patches of forest are surrounded by seas of alien grasses.

Additional threats to the preservation of Puuwaawaa include:

- feral animals;
- pest insects;
- rats;
- lack of comprehensive conservation planning;
- inadequate staffing for resource management and damage mitigation;
- and insufficient funding to support needed management programs.



Department of Land and Natural Resources

Sustainability Hotspot

2

PUUWAAWAA DRYLAND FOREST

~Big Island of Hawaii~



A sampling of the native plants found at Puuwaawaa (top to bottom): *kaula* (*alfatonia*), yellow and red (*kokio*) hibiscus, *wiliwili*.

DLNR's Sustainability Hotspot Team, comprised of:

Jon Giffin - Forestry and Wildlife, Big Island, 974-4221;
Reginald Lee - Conservation and Resources Enforcement;
Marc Smith - Historic Preservation;
Charlene Unoki - Land Division;

is responsible for the management and long-term sustainability of Puuwaawaa Dryland Forest.

DLNR's Vision for the Future and How to Achieve It

In DLNR's vision for the future of this sustainability hotspot, the native dryland forest will be re-established in half of its historic range. This is an ambitious goal which will take years and a tremendous investment of labor and money to achieve. DLNR will also:

- provide protection for existing populations of rare and endangered plant species;
- reclaim portions of degraded dryland forest;
- reintroduce native plant species;
- control and eradicate noxious vegetation, especially fountain grass;
- mitigate damage to native forest cover by domestic livestock, feral animals and wildfires;

The first step in achieving DLNR's vision is to complete a comprehensive ecosystem management plan for the area which is currently under consideration. We propose to initiate a community-based approach to forest planning and restoration through collaborative decision-making processes that involve stakeholders in forums designed to encourage creative problem solving.



Department of Land and Natural Resources

Sustainability Hotspot

3

PUUWAAWAA DRYLAND FOREST

~Big Island of Hawaii~



DLNR can restore a portion of the Puuwaawaa Dryland Forest for the benefit of future generations with proper support and infrastructure.

If DLNR is to save the remnants of the imperilled *lama/kauila* lowland dry forest and the rare plants and creatures existing at Puuwaawaa, we will require:

- three new forestry positions;
- materials for plant, animal, insect and fire control;
- additional vehicles;
- infrastructure improvements for irrigation and plant propagation.

Achieving DLNR's vision for the future of Puuwaawaa Dryland Forest will require a budget of \$251,000 in the first year of program operation and \$170,000 in successive years due to start-up costs. 🌿



Members of DLNR's Hotspot Team for Puuwaawaa Dryland Forest: (l-r) Giffin, Lee, Smith, Unoki.